

Remarks

Applicants respectfully request reconsideration of the present application in light of the foregoing amendments and following remarks.

Claims 1-12 and 14-19 are pending. Claims 1, 8, and 14 are independent.

Claims 1 and 10-12 have been amended. No new matter has been added.

Claims 1-12 and 14-19 are rejected. These rejections are respectfully traversed.

Patentability of Claims 11 and 12 under 35 U.S.C. § 112

Claims 11 and 12 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. These rejections are respectfully traversed.

Claim 11 as amended recites “comparing the received code against at least one reference value.” As the Patent Office correctly notes, claim 11 depends from claim 10. However, it is respectfully submitted that the Patent Office is simply ignoring the plain language recited in claim 10. As amended, claim 10 recites “storing the at least one of the first and second codes for later analysis as a received code” (emphasis added). In light of the recitation of claim 10, it is respectfully submitted that one skilled in the art would clearly understand what is being compared in dependent claim 11 when the received code is compared against the at least one reference value, in full and complete compliance with the mandates of 35 U.S.C. § 112, second paragraph. [see M.P.E.P. § 2173.02]

Accordingly, Applicants respectfully submit that the 35 U.S.C. § 112 rejection of claim 11 should be withdrawn.

Claim 12 recites “using at least a part of the received code as an index into a lookup table.” Claim 12 depends from claim 11, which depends from claim 10. Again, it is respectfully submitted that the Patent Office is simply ignoring the plain language recited in claim 10. In

light of the recitation of claim 10, it is respectfully submitted that one skilled in the art would clearly understand what part of the received code is being used in claim 12 as an index into a lookup table, in full and complete compliance with the mandates of 35 U.S.C. § 112, second paragraph. [see M.P.E.P. § 2173.02]

Accordingly, Applicants respectfully submit that the 35 U.S.C. § 112 rejection of claim 12 should be withdrawn.

Patentability of Claims 1, 2, 4, and 5 over Mayrargue under 35 U.S.C. § 103(a)

Claims 1, 2, 4, and 5 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Pub. No. 2004/0234005 of Mayrargue (“Mayrargue”). These rejections are respectfully traversed.

Independent claim 1 as amended is directed to a method of transmitting communications codes, and recites:

transmitting a first pseudo-noise code from *a transmitter*; and
transmitting a second pseudo-noise code from *the transmitter*, wherein the second pseudo-noise code is a *time-reversed version of the first pseudo-noise code* and a relationship between the first and second codes in each transmission allows transmission of two bits of data for each one transmission by *forming the first pseudo-noise code and the second pseudo-noise code into a pair* (emphasis added).

Applicants respectfully submit that Mayrargue does not teach or suggest at least “transmitting a second pseudo-noise code from the transmitter, wherein the second pseudo-noise code is a time-reversed version of the first pseudo-noise code and a relationship between the first and second codes in each transmission allows transmission of two bits of data for each one transmission by forming the first pseudo-noise code and the second pseudo-noise code into a pair,” as recited in independent claim 1.

The Office Action (“Action”) relies on various passages in Maryargue for its rejection of claim 1. Applicants respectfully submit, however, that none of the cited passages nor any other passage in Maryargue teaches or suggests the subject matter as claimed in claim 1.

For example, Maryargue is understood to describe a transmission method in which *multiple antennas* transmit multiple symbols superpositioned such that each receiver must extract the superposition of symbols (*see, e.g.*, paragraphs [0081] to [0089]). Maryargue states in paragraph [0031], as noted in the Action, that “[w]hile *the first antenna* is transmitting the symbols in the order in which they arrive (as it would do if the transmission had occurred on a single antenna), *the second* transmits the complex conjugates of the same symbols” (emphasis added). Also, the Abstract makes clear that “[t]he invention relates to a transmission method wherein *n antennae* emit each symbol with a spread spectrum code” (emphasis added).

Thus, Applicants understand Maryargue to require multiple antennas for multiple symbols. This is contrary to the claimed subject matter of claim 1, which recites a single transmitter: “transmitting a first pseudo-noise code from *a transmitter*” and “transmitting a second pseudo-noise code from *the transmitter*” (emphasis added). Accordingly, Applicants submit that Maryargue does not teach or suggest the limitations of claim 1.

Furthermore, referring back to paragraph [0031], Maryargue explains that the first antenna transmits “the symbols in the order in which they arrive” and that “the second transmits the complex conjugates of the same symbols.” Thus, Applicants understand Maryargue to require the *separate transmission* of the symbols and the complex conjugates of the same symbols, which is consistent with Maryargue’s description of using multiple antennas to transmit multiple symbols, as discussed above.

Maryargue's description of the separate transmission of symbols and their complex conjugates is contrary to the claimed subject matter of claim 1, which recites that "a relationship between the first and second codes in each transmission allows transmission of two bits of data for each one transmission by *forming the first pseudo-noise code and the second pseudo-noise code into a pair*" (emphasis added). Accordingly, Applicants submit that Maryargue does not teach or suggest the limitations of claim 1.

Therefore, because Mayrargue does not teach or suggest the limitations of independent claim 1, Applicants respectfully submit that the 35 U.S.C. § 103(a) rejection of independent claim 1 should be withdrawn.

Dependent claims 2, 4, and 5 depend directly or indirectly from independent claim 1 and are allowable for at least the reasons presented above with respect to the parent claim 1.

Dependent claims 2, 4, and 5 are also independently patentable.

Accordingly, Applicants respectfully submit that the 35 U.S.C. § 103(a) rejections of dependent claims 2, 4, and 5 should be withdrawn.

Patentability of Claim 3 over Mayrargue and Sugita under 35 U.S.C. § 103(a)

Claim 3 is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Mayrargue in view of U.S. Patent No. 5,862,172 to Sugita et al. ("Sugita").

Dependent claim 3 depends from independent claim 1 and is allowable for at least the reasons presented above with respect to the parent claim 1. Dependent claim 3 is also independently patentable.

Furthermore, Applicants respectfully submit that Sugita does not cure the deficiencies of Mayrargue. For example, Applicants can find nothing in Sugita that is understood to teach or

suggest at least “transmitting a second pseudo-noise code from the transmitter, wherein the second pseudo-noise code is a time-reversed version of the first pseudo-noise code and a relationship between the first and second codes in each transmission allows transmission of two bits of data for each one transmission by forming the first pseudo-noise code and the second pseudo-noise code into a pair,” as recited in the parent claim 1.

Accordingly, Applicants respectfully submit that the 35 U.S.C. § 103(a) rejection of dependent claim 3 should be withdrawn.

Patentability of Claim 6 over Mayrargue and Partyka under 35 U.S.C. § 103(a)

Claim 6 is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Mayrargue in view of U.S. Patent No. 6,925,105 to Partyka (“Partyka”).

Dependent claim 6 depends from independent claim 1 and is allowable for at least the reasons presented above with respect to the parent claim 1. Dependent claim 6 is also independently patentable.

Furthermore, Applicants respectfully submit that Partyka does not cure the deficiencies of Mayrargue. For example, nothing in Partyka is understood to teach or suggest at least “transmitting a second pseudo-noise code from the transmitter, wherein the second pseudo-noise code is a time-reversed version of the first pseudo-noise code and a relationship between the first and second codes in each transmission allows transmission of two bits of data for each one transmission by forming the first pseudo-noise code and the second pseudo-noise code into a pair,” as recited in the parent claim 1.

Accordingly, Applicants respectfully submit that the 35 U.S.C. § 103(a) rejection of dependent claim 6 should be withdrawn.

Patentability of Claim 7 over Mayrargue and Varney under 35 U.S.C. § 103(a)

Claim 7 is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Mayrargue in view of U.S. Pub. No. 2004/0095954 of Varney et al. (“Varney”).

Dependent claim 7 depends from independent claim 1 and is allowable for at least the reasons presented above with respect to the parent claim 1. Dependent claim 7 is also independently patentable.

Furthermore, Applicants respectfully submit that Varney does not cure the deficiencies of Mayrargue. For example, nothing in Varney is understood to teach or suggest at least “transmitting a second pseudo-noise code from the transmitter, wherein the second pseudo-noise code is a time-reversed version of the first pseudo-noise code and a relationship between the first and second codes in each transmission allows transmission of two bits of data for each one transmission by forming the first pseudo-noise code and the second pseudo-noise code into a pair,” as recited in the parent claim 1.

Accordingly, Applicants respectfully submit that the 35 U.S.C. § 103(a) rejection of dependent claim 7 should be withdrawn.

Patentability of Claim 8 over Sugita and Moses under 35 U.S.C. § 103(a)

Claim 8 is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sugita in view of U.S. Patent No. 6,035,177 to Moses et al. (“Moses”). This rejection is respectfully traversed.

Independent claim 8 is directed to a method of transmitting communications codes, and recites:

receiving a transmission including first and second pseudo-noise codes formed into a pair;

comparing the first pseudo-noise code to the second pseudo-noise code;

detecting a match between the first and second pseudo-noise codes based upon a match count peak; and

sending an enable signal to a memory to cause the memory to store at least one of the first and second codes, the enable signal based upon a match detection result (emphasis added).

Applicants respectfully submit that Sugita does not teach or suggest at least “comparing the first pseudo-noise code to the second pseudo-noise code” or “sending an enable signal to a memory to cause the memory to store at least one of the first and second codes, the enable signal based upon a match detection result,” as recited in independent claim 8.

The Action relies on various passages in Sugita for its rejection of claim 8. Applicants respectfully submit, however, that none of the cited passages nor any other passage in Sugita teaches or suggests the subject matter as claimed in claim 8.

Sugita is understood to describe a system in which two pseudo-noise (PN) codes are received in a first portion of a signal. However, these two codes appear to never be compared against each other. For example, Sugita states at col. 5, lines 51-58 (as noted in the Action), that “the PN detecting part 28 detects the first PN code S20 to *output the detected signal S28* to a timing detecting part 30, and that “[t]he PN detecting part 29 detects the second PN code S21 to *output the detected signal S29* to the timing detecting part 30” (emphasis added). Thus, Applicants submit that the detected signals S28 and S29 each result merely from a detection of the first and second PN codes S20 and S21 at an incoming signal and not from any type of comparison, let alone a comparison against each other.

Furthermore, Sugita states at col. 7, lines 34-42 (as noted in the Action), that “the PN deciding unit 45 decides that if both of the two detected signals S28, S29 are *under the predetermined threshold value*, it is the non-detection state, and decides that if they are *over the*

predetermined threshold value, the signal having the stronger intensity is detected” (emphasis added). Thus, Applicants submit that the only comparison involving the detection signals S28 and S29 appears to be a *separate comparison of each signal against a predetermined threshold value*. Accordingly, Applicants respectfully submit that Sugita does not teach or suggest at least “comparing the first pseudo-noise code to the second pseudo-noise code,” as recited in claim 1.

In addition, Applicants submit that Sugita does not teach or suggest “sending an enable signal to a memory to cause the memory to store at least one of the first and second codes, the enable signal based upon a match detection result,” as acknowledged by the Patent Office in the Action at page 8, first full paragraph.

Applicants submit that Moses does not cure the deficiencies of Sugita. For example, nothing in Moses is understood to teach or suggest at least “comparing the first pseudo-noise code to the second pseudo-noise code,” as recited in claim 8.

Additionally, Applicants submit that nothing in Moses teaches or suggests “sending an enable signal to a memory to cause the memory to store at least one of the first and second codes, the enable signal based upon a match detection result.” Moses describes at col. 11, lines 21-40 (as noted in the Action), the confirmation of the acquisition of an ancillary code, which confirmation serves to indicate that a lock is valid. Moses states that “[t]he ancillary codes output from the NN 332 is held in a data storage unit (DSU) 334, the contents of which may be transferred at regular intervals by any appropriate means to a central processing unit 336.” Thus, Moses is understood to merely describe the storage of an ancillary code outputted from a neural network (NN) and not an enable signal, let alone “sending an enable signal to a memory to cause the memory to store at least one of the first and second codes, the enable signal based upon a match detection result,” as recited in claim 8.

Therefore, Applicants respectfully submit that Sugita and Moses, taken individually or in combination, do not teach or suggest the limitations of independent claim 8. Accordingly, the 35 U.S.C. § 103(a) rejection of independent claim 8 should be withdrawn.

Patentability of Claim 9 over Sugita, Moses, and Strong under 35 U.S.C. § 103(a)

Claim 9 is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sugita in view of Moses as applied to claim 8 and further in view of U.S. Patent No. 6,442,191 to Strong (“Strong”).

Dependent claim 9 depends from independent claim 8 and is allowable for at least the reasons presented above with respect to the parent claim 8. Dependent claim 9 is also independently patentable.

Additionally, Applicants submit that Sugita and Moses do not teach or suggest “filtering outputs resulting from the detecting to identify sharp peaks,” as acknowledged by the Patent Office in the Action at page 9, first paragraph.

Furthermore, Applicants respectfully submit that Strong does not cure the deficiencies of Sugita and Moses. For example, nothing in Strong is understood to teach or suggest at least “comparing the first pseudo-noise code to the second pseudo-noise code” or “sending an enable signal to a memory to cause the memory to store at least one of the first and second codes, the enable signal based upon a match detection result,” as recited in the parent claim 8.

Accordingly, Applicants respectfully submit that the 35 U.S.C. § 103(a) rejection of dependent claim 9 should be withdrawn.

Patentability of Claims 14-16 over Sugita, Godo, and Moses under 35 U.S.C. § 103(a)

Claims 14-16 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sugita in view of U.S. Patent No. 4,205,302 to Godo (“Godo”) and Moses. These rejections are respectfully traversed.

Independent claim 14 is directed to a device, and recites:

a receiver to receive a pair of *pseudo-noise codes*;
a first register to store *a first pseudo-noise code*;
a second register to store *a second pseudo-noise code* in time-reversed order;
a comparison circuit to *compare contents of the first register to contents of the second register* and output a match count result; and
a memory electrically coupled to the comparison circuit to *receive an enable signal* from the comparison circuit, the enable signal being based upon a match count result (emphasis added).

Firstly, Applicants submit that Sugita does not teach or suggest “a first register to store a first pseudo-noise code,” “a second register to store a second pseudo-noise code in time-reversed order,” “a comparison circuit to compare contents of the first register to contents of the second register and output a match count result,” or “a memory electrically coupled to the comparison circuit to receive an enable signal from the comparison circuit, the enable signal being based upon a match count result,” as acknowledged by the Patent Office in the Action at page 10, first paragraph.

Applicants respectfully submit that Godo does not cure the deficiencies of Sugita. The Action relies on various passages in Godo for its rejection of claim 14. Applicants respectfully submit, however, that none of the cited passages nor any other passage in Godo teaches or suggests at least “a first register to store a first pseudo-noise code,” “a second register to store a second pseudo-noise code in time-reversed order,” or “a comparison circuit to compare contents of the first register to contents of the second register and output a match count result,” as claimed in claim 14.

For example, the Action directs attention to Godo at col. 5, lines 16-20, which states: “recirculating *a known word* in a first shift register clocked in a first direction” and “clocking *said data stream* through a second shift register in a direction opposite from said first direction” (emphasis added). Thus, Godo is understood to merely describe “a real time system for recognizing variable length words serially transmitted in a data stream” (*see* col. 1, lines 12-14). Applicants can find nothing in Godo that teaches or suggests the use of *pseudo-noise codes*, let alone “a first register to store a first pseudo-noise code” or “a second register to store a second pseudo-noise code in time-reversed order,” as recited in claim 14.

Furthermore, because Godo does not teach or suggest the use of pseudo-noise codes, Applicants submit that Godo does not teach or suggest any type of comparison performed on such pseudo-noise codes, let alone “a comparison circuit to compare contents of the first register to contents of the second register and output a match count result,” as recited in claim 14. The Action directs attention to Godo at col. 2, lines 25-28, but that section is understood to merely describe two words (one known and one unknown) being input to a comparator and has nothing to do with pseudo-noise codes, let alone comparisons involving pseudo-noise codes.

Applicants respectfully submit that, like Godo, Moses does not cure the deficiencies of Sugita. The Action relies on various passages in Moses for its rejection of claim 14. Applicants respectfully submit, however, that none of the cited passages nor any other passage in Moses teaches or suggests at least “a first register to store a first pseudo-noise code,” “a second register to store a second pseudo-noise code in time-reversed order,” or “a comparison circuit to compare contents of the first register to contents of the second register and output a match count result,” as recited in claim 14.

Furthermore, Applicants can find nothing in Moses that is understood to teach or suggest “a memory electrically coupled to the comparison circuit to receive an enable signal from the comparison circuit, the enable signal being based upon a match count result.” For example, the Action directs attention to Moses at col. 11, lines 21-35. This section describes the confirmation of the acquisition of an ancillary code, which confirmation serves to indicate that a lock is valid. As discussed above, Moses is understood to merely describe the storage of an ancillary code outputted from a neural network (NN) and not an enable signal, let alone “a memory electrically coupled to the comparison circuit to receive an enable signal from the comparison circuit, the enable signal being based upon a match count result,” as recited in claim 14.

Therefore, Applicants respectfully submit that Sugita, Godo, and Moses, taken individually or in combination, do not teach or suggest the limitations of independent claim 14. Accordingly, the 35 U.S.C. § 103(a) rejection of independent claim 14 should be withdrawn.

Dependent claims 15 and 16 depend from independent claim 14 and are allowable for at least the reasons presented above with respect to the parent claim 14. Dependent claims 15 and 16 are also independently patentable.

Accordingly, Applicants respectfully submit that the 35 U.S.C. § 103(a) rejections of dependent claims 15 and 16 should be withdrawn.

Patentability of Claim 10 over Sugita, Moses, and Fitzgibbon under 35 U.S.C. § 103(a)

Claim 10 is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sugita in view of Moses as applied to claim 8 and further in view of U.S. Pub. No. 2003/0023881 of Fitzgibbon et al. (“Fitzgibbon”).

Dependent claim 10 depends from independent claim 8 and is allowable for at least the reasons presented above with respect to the parent claim 8. Dependent claim 10 is also independently patentable.

Additionally, Applicants submit that Sugita and Moses do not teach or suggest “storing the code for later analysis as a received code,” as acknowledged by the Patent Office in the Action at page 12, third paragraph.

Furthermore, Applicants respectfully submit that Fitzgibbon does not cure the deficiencies of Sugita and Moses. For example, nothing in Fitzgibbon is understood to teach or suggest at least “comparing the first pseudo-noise code to the second pseudo-noise code” or “sending an enable signal to a memory to cause the memory to store at least one of the first and second codes, the enable signal based upon a match detection result,” as recited in the parent claim 8.

Accordingly, Applicants respectfully submit that the 35 U.S.C. § 103(a) rejection of dependent claim 10 should be withdrawn.

Patentability of Claim 17 over Sugita, Godo, Moses, and Poon under 35 U.S.C. § 103(a)

Claim 17 is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sugita in view of Godo and Moses as applied to claim 14 and further in view of U.S. Pub. No. 2003/0128747 of Poon et al. (“Poon”).

Dependent claim 17 depends from independent claim 14 and is allowable for at least the reasons presented above with respect to the parent claim 14. Dependent claim 17 is also independently patentable.

Furthermore, Applicants respectfully submit that Poon does not cure the deficiencies of Sugita, Godo, and Moses. For example, nothing in Poon is understood to teach or suggest at least “a receiver to receive a pair of pseudo-noise codes,” “a first register to store a first pseudo-noise code,” “a second register to store a second pseudo-noise code in time-reversed order,” “a comparison circuit to compare contents of the first register to contents of the second register and output a match count result,” or “a memory electrically coupled to the comparison circuit to receive an enable signal from the comparison circuit, the enable signal being based upon a match count result,” as recited in the parent claim 14.

Accordingly, Applicants respectfully submit that the 35 U.S.C. § 103(a) rejection of dependent claim 17 should be withdrawn.

Patentability of Claim 18 over Sugita, Godo, Moses, and Roth under 35 U.S.C. § 103(a)

Claim 18 is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sugita in view of Godo and Moses as applied to claim 14 and further in view of U.S. Patent No. 4,032,885 to Roth (“Roth”).

Dependent claim 18 depends from independent claim 14 and is allowable for at least the reasons presented above with respect to the parent claim 14. Dependent claim 18 is also independently patentable.

Furthermore, Applicants respectfully submit that Roth does not cure the deficiencies of Sugita, Godo, and Moses. For example, nothing in Roth is understood to teach or suggest at least “a receiver to receive a pair of pseudo-noise codes,” “a first register to store a first pseudo-noise code,” “a second register to store a second pseudo-noise code in time-reversed order,” “a comparison circuit to compare contents of the first register to contents of the second register and

output a match count result,” or “a memory electrically coupled to the comparison circuit to receive an enable signal from the comparison circuit, the enable signal being based upon a match count result,” as recited in the parent claim 14.

Accordingly, Applicants respectfully submit that the 35 U.S.C. § 103(a) rejection of dependent claim 18 should be withdrawn.

Patentability of Claim 19 over Sugita, Godo, Moses, and Harms under 35 U.S.C. § 103(a)

Claim 19 is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sugita in view of Godo and Moses as applied to claim 14 and further in view of U.S. Patent No. 6,493,376 to Harms et al. (“Harms”).

Dependent claim 19 depends from independent claim 14 and is allowable for at least the reasons presented above with respect to the parent claim 14. Dependent claim 19 is also independently patentable.

Furthermore, Applicants respectfully submit that Harms does not cure the deficiencies of Sugita, Godo, and Moses. For example, nothing in Harms is understood to teach or suggest at least “a receiver to receive a pair of pseudo-noise codes,” “a first register to store a first pseudo-noise code,” “a second register to store a second pseudo-noise code in time-reversed order,” “a comparison circuit to compare contents of the first register to contents of the second register and output a match count result,” or “a memory electrically coupled to the comparison circuit to receive an enable signal from the comparison circuit, the enable signal being based upon a match count result,” as recited in the parent claim 14.

Accordingly, Applicants respectfully submit that the 35 U.S.C. § 103(a) rejection of dependent claim 19 should be withdrawn.

Conclusion

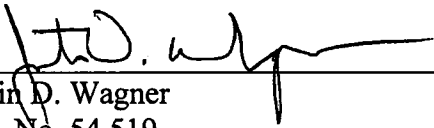
Applicants submit that the present application is in condition for allowance and such action is respectfully requested.

The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

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Respectfully submitted,

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